

691.1



PINE HOMES

CALIFORNIA WHITE & SUGAR PINE
MANUFACTURERS ASSOCIATION

THE UNIVERSITY OF CHICAGO
PUBLISHED WEEKLY BY THE UNIVERSITY OF CHICAGO PRESS
AND THE UNIVERSITY OF CHICAGO LIBRARY
CHICAGO, ILL.
1923

FIN

RUCT

SAC

PLAYS Big

at Which V

\$500,000

ARTER GUI

the interest

will have to be

given, and the

and given in

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

ing, and the

NING, DECEMBER 28, 1924

CONSTRUCTION IS ACTIVE

Plans Big Addition
Which Will
\$500,000

WATER BUILDING

It is expected that construction during the winter will come up to the extent of the summer, and that it will not be more so, than preceding months.

Plans issued by the Bureau of Construction for an addition to the Kent manufacturing plant.

The company is just now planning a 1,000,000 plant, and the addition will cost of \$500,000. Plans are being prepared by the Ballinger Company.

Contracting Company has given the lowest estimate for a new sewage disposal plant, and the city of the Department of Public Works. The lowest figure for the Connec Company was next lowest, at \$53,741. It is expected that the act will be let within a few days.

Street Building
a building at 4815 1/2 street, for Isaac Gross, awarded to George H. The proposed structure will have a brick and with slag roof. Frank architect.

The building permit issued for a large school building, dimensions, for Penn. The new school building in Germantown, and will cost \$100,000. The contract for was awarded to Her of this city, from plans by J. Borie & Medary. Announcement has been made of the future of the school's property, it is likely that as it is one of the best pieces of real estate in the city which have not been sold for years. It also marks the end of the school's section. Servant Academy, east of the city on City street.

GEORGE S. BLAKE JR. READY TO DEVELOP NEW SUBURBAN HILLS PROPERTY

Large Estate of the Late George Blake Will Be Subdivided Into Finest Residential Suburbs of American City

The beautiful estate of the late George S. Blake is to be immediately opened to the public for home-building purposes, so announces George S. Blake Jr., his son.

While extensive plans have been made for a long time, the final decision awaited a report from Frederick A. Williams, Blake's architect, whom he sent to California last month to investigate the merits of California pine lumber, as well as to check up on the service these woods have given in homebuilding construction in several sections of the East and Middle West.

Blake states that he has now received Architect Williams' report, which makes recommendations covering three types of houses, all frame in construction and finish, and he finds the information from Williams of such value that he has

decided to make it available to all homebuilders in Suburban Hills.

Williams was surprised to learn of the enormous supply and production of the California pines, and ran across some most interesting incidents of these woods and production of lumber. What will perhaps be news to everyone, is the fact, as uncovered by Williams, that the discovery of gold in California was made by a sawmill worker in the California pine forests, near Sacramento.

He also states that the value of the lumber already produced in that section far exceeds that of all the gold California has produced. Altogether, the report of Architect Williams appears to be a welcome and valuable contribution toward aiding homebuilders in the selection of the right wood for every use.

PORT WORK NEED SEEN BY SPOULE

Director of Wharves, Docks and Ferries Reports on Condition of City's Waterfront

MARITIME TRADE GAINING

The annual report of the Department of Wharves, Docks and Ferries, just issued by Director George F. Sproule, calls attention to the importance of the waterfront in the city's development.

BUILDING COST LOW IN TIME OF GIRARD

Total Net Expense of Erecting Office and Warehouse Was Only £602.14.11

PRESENTED ITEMIZED BILL

At the present time, when the high cost of construction has become such an important factor in the value of real estate, a bill rendered by Stephen Girard to Edward Stiles in the year 1790 for the cost of constructing a warehouse on the waterfront is of great interest.

BRIGHT FOR HIS VOLUME

Likely That
Effects Will
T

DWELLING GENERAL

Prospects.
construction project.
It is considered
several big jobs
effect on the city
of building, and
small operations
dwelling, can't
time, there is
other work also
Dwelling cost

every year
been kept, but
part of the

The city
program in the
the million
sylvania and
prepared by

robust &
railroad
Market street
about \$52,
has been a
struction by

Ware

Preliminary
and the art
two months
tieth and
Storage
he eight
and it
fect, Ge
will not
attractive

The
in pro
schools
tions, a
outlay of
pleted by
T. Cath
building

FREDERICK A. WILLIAMS
ARCHITECT
AMERICAN CITY

December 1, 1924.

Mr. George S. Blake,
Blake Building,
American City.

My dear Mr. Blake:

I am pleased to submit herewith my report on the uses of California White Pine and California Sugar Pine, in connection with the proposed home building in your new Suburban Hills section.

My investigations in California, supplemented by others in eastern sections where these woods have been used for many years, lead me to conclude that we have found materials for our construction which are unsurpassed for home building.

Without a doubt, our findings will assure most satisfactory results for your investment, and I would suggest that this report be available to all who may purchase property and erect homes in this section.

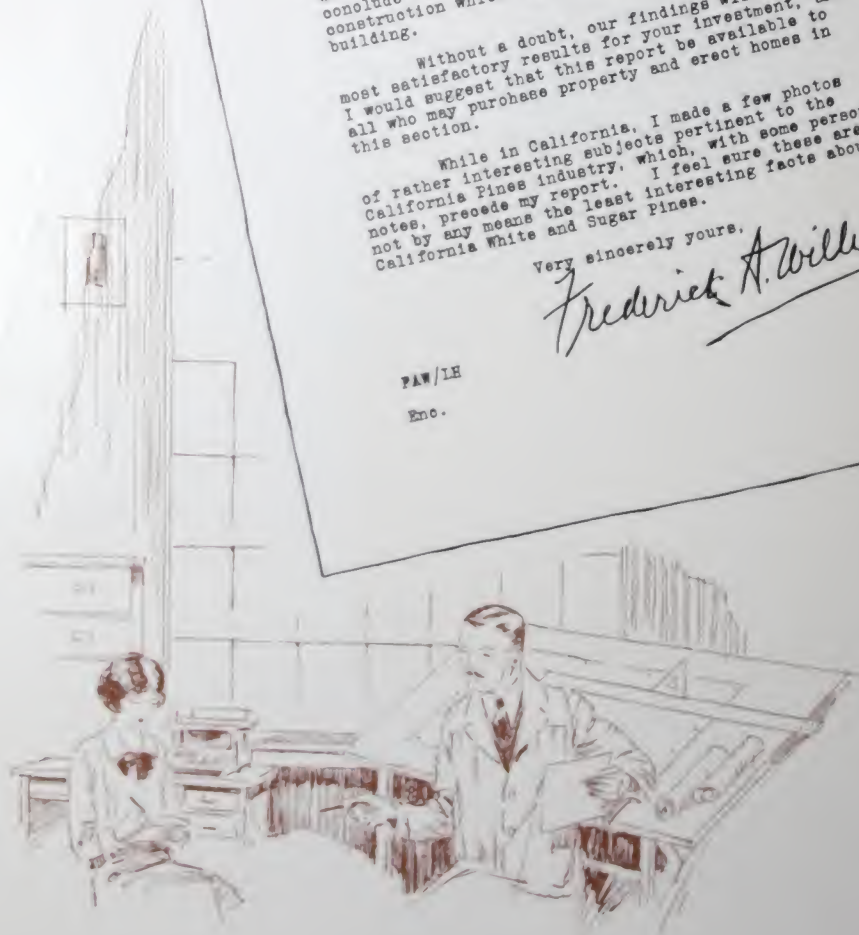
While in California, I made a few photos of rather interesting subjects pertinent to the California Pines industry, which, with some personal notes, precede my report. I feel sure these are not by any means the least interesting facts about California White and Sugar Pines.

Very sincerely yours,

Frederick A. Williams

FAW/LH

Enc.



George
Here's an
the ruins o
mill at Co
forty miles
Fort whic
Sacramen
needed lu
partner, n
built this
in the late
of the gre
of Califor
in the slui
by a lumbe

covering-
century o
in our ea
depends!
in our hou

George-

Here's an old print of the ruins of Sutter's sawmill at Colusa, about forty miles above Sutter's Fort which was at Sacramento. Sutter needed lumber so his partner, named Marshall built this little sawmill in the late '30's-near one of the great pine forests of California. Marshall found small particles of glistening silt in the sluiceway below the mill in the foreground-GOLD!-Discovered by a lumberman! Started the gold rush to California.



Fred



George I shot this photo of an old miner's cabin - way up in the High Sierras - deserted for many many years. Built of boards and "Shakes" chopped from fallen California Pine trees - way back in the days of '49. The wood has never been painted nor given any protective

covering - and is still "Sound"! Has stood here through 3/4's of a century of extremes of heat and cold and storms never experienced in our eastern country. Some folks think wood does not last - it all depends! George! We're taking no chances in using California Pine in our houses.

Fred



George You'll have to agree with me that these
 California White Pine forests are wonderful—
 here's a typical stand of these fine soft pines—these
 California trees are the largest of the species. —
 because of the altitude, soil and fine growing climate
 —lots of sun and moisture, too. Your wife will say—
 "Beautiful trees" — the lumbermen say "Great timber"
 — I say "Fine lumber!" 105 Billion feet of Virgin
 California White Pine timber in the California district,
 with reforesting areas increasing yearly.

We should worry about supply.

Fred

George

Some M
 Sugar p
 the larg
 pines in
 world.

way up
 Sierras
 forests

sugar
 real wh

Hard to
 account
 rough
 but the
 it, and

new q

ten-str

our ho

next

give y

George

Some MORE trees!
Sugar pines, —
the largest of all
pines in the
world. Growing
way up in the high
Sierras - endless
forests of virgin
sugar pines - —
real white pines!

Hard to log, on
account of the
rough country,
but they're doing
it, and lots of

new growth coming on. We'll make a
ten-strike using these California Pines in
our houses - — My report starts on
next page - — have done my best to
give you the facts.



Fred

REPORT OF INVESTIGATION OF CALIFORNIA PINES

Prepared by Frederick A. Williams, *Architect*.

Submitted to Mr. George S. Blake, Jr., *Owner*.

Memorandum:

The proper uses of California White Pine and California Sugar Pine as referred to in this report are the result of careful investigations of qualities, proven uses, supply and production of these woods.

The information in the report has been gathered by a most exhaustive investigation, only a part of which was my recent trip through the pine region of California.

The trip through this wonderful country and its grand forests, a careful scrutiny of the methods employed in lumber manufacture and the remarkable facilities for seasoning and caring for the lumber after it is manufactured, give one a great deal of knowledge which every home builder should have.

Unfortunately, all home builders cannot secure this information for themselves; but as our work was sufficiently large to warrant the expense, we feel that the investigations are well worth our while.

I feel this so keenly that I would consider it selfish were we not to put our report into such shape that any home builder might gain useful information from it.

Foreword:

In recommending that the houses to be built in Suburban Hills be of frame construction throughout, we are minded of the fact that the real American home has for centuries been largely built of pine lumber.

The first settlers in New England and the South used pine frame construction and finish. The Colonial style home, and its many attractive adaptations in all sections of the country, are peculiarly associated with pine lumber and finish.

The adaptability of wood to every form and type of design, and the large available supply of California Pine lumber, sash and door products, leads us to believe we will get the best results from the use of these woods throughout our houses.

Other facts that lead to this conclusion are that wood, being the most flexible building material, lends itself to inexpensive alteration and additions to structures without destroying the attractiveness of the house, as well as having proved itself most satisfactory in service.

The resale value of a house depends to a large extent upon the possible number of buyers, and without question the well constructed frame dwelling, well painted and preserved, appeals to by far the largest number of people.

The attractively painted wood house, with its inviting homey style, is part of the pleasing picture seen in every section of the country.



PLAN OF REPORT ON CALIFORNIA PINES

Procedure

In order that the use of these woods may be considered in logical keeping with building practice, our report follows the order of house construction from foundation to roof.

The inside of the house is then dealt with and every detail will be properly and fully described. In a report of this nature it is necessary that trade terms be used, and in order that you may more readily understand the report the details of construction will be made more clear to you by the use of sketches and photographs. This report, while intended to be useful in our work at Suburban Hills, has been written with the idea that it shall also be of keen interest and help to those who will plan their own homes in our sub-division, and, in fact, to home builders no matter where located.

Having kept this idea foremost in our minds, it is our hope and belief that in doing so we will have contributed something to the advancement of *better home building*.

Separation of Proposed Houses into Classes

In our own home building, and that of others here and elsewhere, naturally there will be a variation in the character, form, size and cost of the home desired. There are a number of construction items that allow a difference in the form and quality of material, dependent upon the home builder's requirements.

It seemed to us that a division of houses into three general classes would make possible the widest use and greatest value of this information. In all houses, however, good substantial construction and finish is provided for.

The following classes are referred to throughout in connection especially with lumber grades recommended:

CLASS I HOUSES—Where Quality is always the first consideration.

CLASS II HOUSES—Where Cost and Quality are of equal importance.

CLASS III HOUSES—Where Economy is the first essential.

WHY USE CALIFORNIA PINES?

The soft pine forests of the east and Lake States supplied lumber for the first American homes. Insistent demands for homebuilding, during recent years, has so depleted the eastern forests that it became necessary to investigate the character and supply of the soft pines of the California district, which are becoming increasingly important as nationally used woods for homebuilding.

The fact that for some time past more than a billion feet of lumber from the California Pine region has been annually used in building and finishing homes, and that the visible supply of California pines is sufficient for building purposes of the next 200 years, adds strength to the statement that the characteristics of quality and service of the California Pines make them worthy successors to their eastern cousins.

PINE HOMES

Characteristics of Quality

Certain distinguishing characteristics of California Pines place them in a class by themselves, among woods which are called "soft-woods," and which have general use in construction and finish. These qualities are apparent in the wood itself, and are the basis of all service values.

1. Texture.....Soft and workable.
2. Grain.....Close, even and uniform.
3. Structure.....Minute cells, regularly formed, evenly spaced, practically free from pitch or resin.
4. Weight.....Light.
5. Color.....Pale, light tones.
6. Surface.....Smooth, satiny, without "raised grain."

The various ways in which these characteristics affect the utility of these woods will be brought out in connection with their uses in the building. Their general effect on the woods in service may here be briefly stated, and should be kept in mind.

Service Characteristics.

1. Ample strength and durability.
2. Freedom from warping, swelling, shrinking, or checking during variable conditions of temperature and humidity.
3. Cut easily, with or across the grain, without splitting.
4. Take and hold nails and screws.
5. Take enamel and paint perfectly.
6. Require less enamel or paint.
7. Do not discolor enamel or paint.
8. Prevent peeling or checking of enamel or paint.

These numerous characteristics, without a question, establish California White and Sugar Pines as woods that meet the standards long established for ideal homebuilding woods, and explain their extensive use in every section of the country.

USE DRY LUMBER

Insurance against the development of structural and finish faults in the completed structure can only be obtained by the use of thoroughly dry lumber. During construction this lumber should always be protected from exposure to the elements. Equally important is the caution against taking dry lumber into a partially completed house, in which the plaster is still damp. These are simply precautions for protecting our own property.

PINE HOMES

THE FOUNDATION

The use of concrete for foundations, now becoming a common practice in frame construction, warrants special attention to the wood forms in which the concrete is set.

If we are to protect our investment in materials and labor, substantial foundation walls with ample size footings are essential. Otherwise, we may expect sagging walls and floors, plaster cracks, loose joints and other evidences of rapid depreciation. Many times these "house faults" are attributed to the woods used, or the construction work, when they are really due to undersized foundations.

"Common" grades of California Pines, which are carried in stock by lumber dealers throughout the country will be found best for form purposes. The boards may be simply "dressed," "tongue and groove," or "shiplap," depending upon the desired smoothness of the concrete walls. In these woods, tight knots are not objectionable for use in forms, as they dress smoothly, and do not impair the necessary strength and stiffness of the boards.

An economy through the use of these woods is the result of their minimum tendency to shrink, when in contact with moisture, thus making possible the re-use of form lumber, either in building forms for other houses, or, after being allowed to dry out, as sheathing, sub-flooring or roof boards in the same house.



Pine Qualities for Concrete Forms.

Softest wood, easy to handle, smooth finish, light weight, easily handled, slight shrinkage, makes smooth, clean walls, after drying may be re-used. Ample strength and stiffness.



LUMBER GRADES FOR CONCRETE FORMS

- CLASS I HOUSES—No. 2 Common California Pine, 1 inch nominal thickness; surfaced four sides; tongue and groove, or shiplap.
- CLASS II HOUSES—No. 3 Common California Pine, 1 inch nominal thickness or 11/16 inch; surfaced two sides or four sides; tongue and groove, or shiplap.
- CLASS III HOUSES—No. 4 Common California Pine, 1 inch nominal thickness; surfaced two sides or shiplapped, No. 3 Common, 11/16 inch, surfaced two sides, or shiplap.

For the framework or bracing of the concrete forms, where more strength is required, No. 2 dimension California Pine lumber should be used in sizes 2x3, 2x4, and, occasionally, 4x4.

FRAMEWORK (The "Skeleton" of the house)

Having provided substantial foundation walls, we next should give particular attention to the framework. Upon the stability of joists, studding and rafters will depend the service we may expect from all other parts of the house which are fastened to the framework, both outside and inside.

Errors, through the use of poor materials for framing or careless workmanship, are most difficult and expensive to correct. They are the "bone-cancers" of the home. We must not fool ourselves and think, because the framework is covered up, that the material, workmanship and construction specifications do not count. If these are not right, we may not see

Eleven



the fault, but the effects will be apparent for years, in cracked plaster, sagging, squeaky floors, leaky walls or roof, and sticking windows and doors. A small fraction of the cost of trying to overcome the

effect of poor framing will assure a framework that will prevent such annoyances and depreciation.

Pine Qualities for Framing.

Light weight, ample strength and stiffness. Easy-cutting texture, freedom from warping or twisting. Easy to nail, nails hold tight.

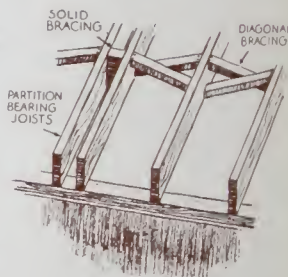
Floor Joists

The sizes of floor joists, which support the floors, as the illustration shows, depend upon the length of span to be bridged, the distance between joists, and the probable weight they must sustain. Stiffness is added to strength by the criss-cross braces between the top of one joist and the bottom of the one next to it. This bridging should extend the entire distance between outside walls.

One of the surest tests of secure joist construction is to walk briskly across the floor. Perhaps some of us have had the experience of causing a little household earthquake, rattling the dishes and lighting fixtures, by simply strolling through the dining room of some house we were in. "I wonder if I'm getting so awfully heavy," we may have thought. Not that—just the result of undersized floor joists, probably without bridging.

While usually floors must be able to sustain a live load of 40 pounds per square foot in addition to a dead load of 10 pounds per square foot, there will be times when unusually heavy weights, such as pianos, must be supported by a small area of the floor. Bridging under the floor will distribute the stress over a number of joists, thereby preventing sagging of the floor.

It sometimes happens that workmen installing plumbing and heating apparatus, unintentionally weaken otherwise good floor joist construction by notching or cutting, to allow for their piping. A little care and co-operation between workmen will prevent any such condition, by having it understood that the carpenters will do all cutting and notching, and they will see to it that, if the necessary support is thus lost, it can be replaced by the use of headers or by doubling up joists.



Sizes of California Pine Floor Joists

The length of the unsupported span under the usual spacing of 16 or 24 inches apart—16 inch being the common practice—determines the depth of joists, which should be 2" x 6"; 2" x 8"; 2" x 10", or 2" x 12". In many cases we will find it advantageous to reduce the length of the span by placing girders beneath the floor.

PINE HOMES

The best authorities on structural stresses for wood have compiled a table on floor joists in small house construction which seems to present details of span lengths and joist sizes which will cover all our requirements. For your information we submit this table, as it will be found to have particular application to the use of California White Pine, one of the woods we are to use.

MAXIMUM PERMISSIBLE UNSUPPORTED SPANS OF CALIFORNIA WHITE PINE FLOOR JOISTS

(Based on 40 pounds per square foot live load and 10 pounds per square foot weight of floor)

From data furnished by the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, January 11, 1922, as published in "Recommended Minimum Requirements for Small House Construction," published by the Bureau of Standards, U. S. Department of Commerce.

Maximum Length of Span

Size of Joists	16' Spacing		24" Spacing	
	Grade 1	Grade 2	Grade 1	Grade 2
2 x 6—S1S1E to 1½ x 5½	8' 9"	7' 2"	7' 2"	5' 10"
2 x 8—S1S1E to 1½ x 7½	11' 8"	9' 7"	9' 7"	7' 9"
2 x 10—S1S1E to 1½ x 9½	14' 10"	12' 1"	12' 1"	9' 10"
2 x 12—S1S1E to 1½ x 11½	17' 11"	14' 8"	14' 8"	11' 11"

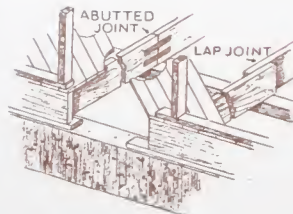
Note:—In the "Recommended Minimum Requirements for Small House Construction," from which these figures were taken, California White Pine is classed with the white pine of the Lake States and New England. This species was for generations the main construction material of a great portion of the United States. Structures of all sizes and types, from small houses to large bridges, were built of it. Many of them still bear witness to the strength and durability of white pine.

The grades designated as Grades 1 and 2 are those used in the original table. With a little care on the part of the builder in selecting and using joists according to the rule mentioned, lumber to fill this need may be selected from the standard association grades of dimension.

Bridging and Nailing Joists

There are just a few points in this connection that are worthy of being noted here, and they are very important in providing rigidity to the building frame. Beneath every floor, at intervals not exceeding 8 feet, there should be rigid bridging. The ends of lapped joints, which rest upon girders, should be securely spiked. Abutted joints should be tied together with steel connecting straps, or "dogs," and every joist entering into a wood wall or resting upon a ledger or ribbon board, should be spiked to the studding.

A little study of the accompanying sketch will make this understandable to all who may build.



Thirteen

Studding

Rising from the floor joists, and giving form to the house, are the vertical studs, which really are the ribs of the structure, and provide the framework and support for fastening many of the structural and finishing portions of the side walls. Window and door frames, sash and doors, sheathing, siding, lath and plaster will all later on be seen to have their good service largely dependent upon the materials used and the character of the mechanical work performed in erecting the studding.

Here again, strength and rigidity are seen to be the essentials because the weight of the house, together with its roof, rest upon the studding, and upon it will also come the strains of severe pressure from wind and storm.

The main requirement for good studding is lumber that readily cuts in any direction, does not warp or twist, and which tightly holds nails without splitting, thus maintaining natural strength—all of which qualities are found in these California Pines.

All studding for outside walls should be 2 x 4 dimension and thoroughly dry. Inside partition studding may safely be built of 2 x 3 dimension stock in small or one-story houses. In large houses, 2 x 6 dimension should be used for outside walls. Especially in large, two-story houses this size should at least be used for the first floor.



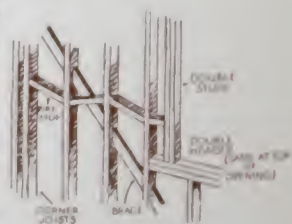
Thoroughly Brace All Studding

While we have referred to good bracing as a rather important element in providing rigidity throughout the framing, and this applies particularly to studding, there are other reasons for bracing, equally worthy of consideration at this time, which will have a direct bearing on the living conditions in the home.

When sheathing is not applied diagonally, all studding corners should be reinforced with diagonal braces of the same sizes as the studs.

Studs should be doubled around window and door frames and the loss of strength where necessary to cut away double studs will be overcome by bridging. Much of the annoyance and trouble of sash and door sticking is directly traceable to failure to properly brace the studs around frames which sag out of line. To replace such faulty construction would be very expensive, and will not be necessary if these few precautions and suggestions are considered at this stage of construction.

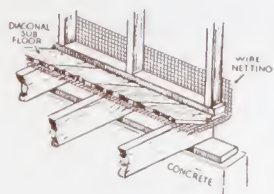
One of the reasons for exterior walls is to insulate, so far as possible, the inside from the outside of the house. It is difficult to imagine why, therefore, some people so construct the framework that the vertical studs provide a labyrinth of draughty alleys for the winds to whistle through, from basement to roof. Braces between the studs will block off the draughty passages, at a cost not to exceed that of a couple of tons of coal, and the saving in heat, to say nothing of comfort, will soon turn the cost into a profit on the heating bill.



Pine Qualities
 for
 Floor Joists
 and Bridging,
 Studding and
 Rafters.
 Any strength
 and stiffness.
 Freedom from
 twisting.
 Ease of cutting.
 Light weight.
 Sound, tight joints.
 Nails easily
 without splitting.
 Holds nails tight.

PINE HOMES

A glance at the illustration will make it readily apparent that the same precaution provides a fire retardent inside wall. The fire which might start would travel slowly because of the continued impediments the braces provide. They are real fire-stops, and so far as we know there seems no argument against them.



Just as a minor point of interest we here illustrate how a little foresight in building will prevent common annoyances. A strip of ordinary wire fly screen about two feet wide, properly arranged between the first floor joists, the plate and the studding, will prevent rodents from entering the house, or running up between the partitions. It must be kept in mind that these animals can only gain entrance at a corner, and protection for the corners of the floor is all that is required.

Rafters

At the very top of the framing are the rafters which support the roof. Generally, the size and strength of rafters depend upon the weight of the roof itself, and the resistance necessary against winds. In most sections of the country the snow-load must also be taken into consideration. The shape and angles of the roof are also factors for everyone to consider, for in most instances the entire beauty of the house depends upon the roof lines.

As will be seen by the sketch herewith, the same general provisions for proper size and bracing apply to the rafters as to other parts of the framing. Shingles are bound to become loose and cause roof leaks when rafters sag because of insufficient size or bracing; and if they sag they will also crowd the walls of the house out of plumb.

Rafters supporting sloping roofs should be securely tied together at the apex and also the collar. Diagonal bracing, from the center of the rafter's ridge to the sides, will result in distributing the thrust of the roof to the side walls. In effect this form of bracing makes two trusses of the roof, nailed together at the peak.

In addition to strengthening the entire frame, it also will add considerable usable space to the attic or top floor, as it eliminates cross ties from the center of the attic.

Just one other suggestion is in place before leaving the subject of framing. In the houses having flat roofs where the roofing material is necessarily heavier, we may well suggest the advisability of extra large rafters.

We must give the most careful and intimate thought to providing a skeleton for the house that will insure the utmost enjoyment and least depreciation during its period of usefulness. The use of California Pine lumber is one sure means toward that end.



PINE HOMES

While the table following is technical in its matter, no doubt it will be found interesting, as proof of the fact that California Pines fulfill all the requirements for good framing of house structures. We should remember that eastern white pine was for many years the generally used wood for framing, and the Forest Products Laboratory places California White Pine in the same class.

ALLOWABLE STRESSES FOR CALIFORNIA WHITE PINE STRUCTURAL TIMBER IN SMALL DWELLINGS

From data furnished by the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, August 1, 1922, as published in "Recommended Minimum Requirements for Small House Construction," published by the Bureau of Standards, U. S. Department of Commerce.

Grade	Allowable Bending Stress		Allowable Stress in Compression		Modulus of Elasticity
	In extreme fiber	Horizontal shear	Parallel to grain	Perpendicular to grain	
	Lbs. per sq. inch	Lbs. per sq. inch	Lbs. per sq. inch	Lbs. per sq. inch	1000 lbs. per sq. inch
Grade 1.....	900	85	750	250	1000
Grade 2.....	600	57	500	250	1000

Note:—In the "Recommended Minimum Requirements for Small House Construction," from which these figures were taken, California White Pine is classed with the white pine of the Lake States and New England. This species was for generations the main construction material of a great portion of the United States. Structures of all sizes and types, from small houses to large bridges, were built of it. Many of them still bear witness to the strength and durability of white pine.

The grades designated as Grades 1 and 2 are those used in the original table. With a little care on the part of the builder in selecting and using joists according to the rule mentioned, lumber to fill this need may be selected from the standard association grades of dimension.

Requirements for Framing

As we may have noticed in the preceding table, the distances, center to center, between studs or joists is commonly 16 inches, and that California Pines are of sufficient strength and stiffness.

Generations of use have proved this spacing to be satisfactory. Wood lath, which are 48 inches long, extend over three 16 inch spans. Doors, as a rule, are 30 inches wide, thus fitting between two joists.

Where building codes are in effect, the maximum lengths of joists and types of bracing are specified for various forms of construction. As a general rule, the opinion of a good builder can be followed with safety in this matter, where building codes are not in force.

CALIFORNIA PINE LUMBER GRADES FOR FRAMING

Dimension stock is recommended, and will be found in dealers' stocks, in rough form, or surfaced to American Lumber Standards.

CLASS I HOUSES—California Pine "No. 1 Dimension"

CLASS II HOUSES—California Pine "No. 2 and Better Dimension"

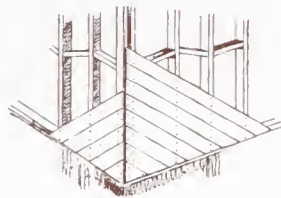
CLASS III HOUSES—California Pine "No. 2 Dimension"

Sheathing

Having completed a substantial and lasting skeleton for the house the next step is to cover the framework on the outside with wood sheathing, which will act as an insulator against heat and cold, as well as providing the base for attaching the exterior siding, trim, cornices eaves, gutters and other parts of the finish.

We will remember that the lumber for sheathing comes in the same kinds as that used for concrete form work, and in case the home has a full basement, we already have on hand sufficient material for sheathing. However, we must be sure it has been allowed to dry thoroughly, before re-using it.

Our illustration herewith shows the diagonal manner which is best for applying sheathing, as it adds rigidity to the frame. Of course the cost of diagonal sheathing is slightly more than that of other methods, also requires a little more lumber, but when we realize that sheathing stock is inexpensive "common grades" of California Pines, and that once installed, it is difficult to repair or replace, it will be false economy to attempt anything other than diagonal installation.

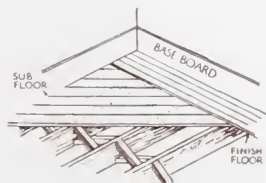


*Pine Qualities
for
Sheathing,
Sub-floors,
Roof Boards.*

*Ample strength
and stiffness.
Ease of cutting.
Freedom from
twisting.
Light weight.
Nails easily,
without splitting.
Holds nails tight.*

Sub-flooring

Likewise, sub-flooring, if laid diagonally, as shown, permits laying the finished flooring at right angles to the direction of the floor joists, thus providing maximum floor strength. Under the same conditions, owners will not be annoyed by unsightly bulges or cracks in the finished floors, the cause of which can usually be traced to parallel nailing of floor strips and sub-flooring boards. The excellent nail-holding qualities of California Pines will here prove of great advantage in securely nailing finished floors to the sub-flooring, and thus prevent squeaky floors, the usual cause of which is loosened nails in sub-floors.



We find that the Forest Products Laboratory recommends the following practice in nailing sub-flooring:

With 4 or 6 inch boards. 2 nails per board per joist.
With 8, 10 or 12 inch boards. 3 " " " " "

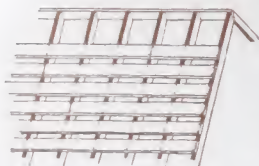
Well laid sub-flooring will prevent air and dust passing from floor to floor, and materially deaden all noise in the home.

Roof Boards

Just as sheathing and sub-flooring provide the base for exterior finish and floors, respectively, the roof boards will be the foundation upon which roofing materials are fastened.

Boards of narrow width, say 3 or 4 inches, laid with intervening space of 2 inches, will give the required base, and also permit free circulation of air, for ventilating purposes.

PINE HOMES



In the sketch we have shown how these roof boards had best be laid, so that adjacent boards do not end on the same rafter, thus distributing the weight of the roof over a larger area of sub-surface. At least two 8 or 10-penny nails should be used to securely fasten the board upon each rafter.

However, solid roof sheathing may be effectively used. For this purpose, random width lumber is best. This form has the advantage of giving a smooth base for the shingles and is said to be more fire resistant than the open type.

Roof boards which are dressed will provide a uniformly thick and even base for fastening shingles or other roof material. The evenness of the base is extremely important.



CALIFORNIA PINE LUMBER GRADES FOR SHEATHING, SUB-FLOORS, ROOF BOARDS

- CLASS I HOUSES—1 inch No. 2 "Common" California Pine, tongue and groove, or shiplap.
- CLASS II HOUSES—1 inch No. 3 "Common" California Pine or 11/16 surfaced on four sides, or tongue and groove, or shiplap.
- CLASS III HOUSES—1 inch No. 3 or 4 "Common" California Pine, surfaced two or four sides, or tongue and groove, or shiplap.
Alternate: 11/16 inch No. 3 "Common," surfaced one side, or surfaced one side and two edges, or shiplap.

THE ROOF

Wood Shingles Most Attractive

For beauty, in keeping with properly designed frame houses, wood roof shingles are unsurpassed. When properly applied they have elements of service and economy which we believe warrant their use in all classes of houses under consideration. Although the manufacturers of California Pines do not produce shingles, there are several excellent kinds of other woods, and while we will not now make any definite recommendations, it is well that certain facts as to their use be here incorporated.

The following specifications will provide a tight, durable, weather-proof roof, that insulates against heat of the sun and winter's cold. Wood shingles also have the advantage of deadening the sound of beating rain and hail stones.

Laying Shingles

Best results will come from the use of edge-grain shingles, measuring at the butts not less than five shingles to 2 inches in thickness. If they are not to be stained, they should be thoroughly soaked in water before applying. Shingles over 9 inches wide should be split before laying.

The first course should be double, with from $1\frac{1}{4}$ to 2 inches projection over the crown mold, and 1 inch projection at gables. 18 and 24 inch shingles can safely be laid with larger weather exposure than 16 inch shingles, and with more rapidity.

Break joints not closer than $1\frac{1}{4}$ inches, side lap, and it is well that the breaks do not come directly over each other on any three consecutive courses.

Importance of Good Nails

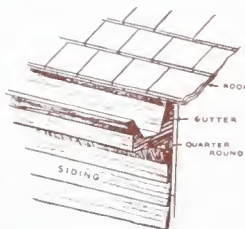
The use of hot-dipped, zinc-coated nails will greatly lengthen the life of shingles, and the slight additional cost we believe is a good investment, for the roof cannot last longer than the nails that hold the shingles in place. Ordinarily nails rust and break long before the shingles would show any deterioration. It's simply another case of the owner's interest in protecting his investment in good material.

The heads of nails should not be driven into the shingles, and should always be covered by the shingles in the other rows.

Flashings and Gutters

Wherever there is an opening in the roof, zinc or copper flashings should be placed around it. The same precaution applies to angles where gables join and the lining of gutters.

Gutters, while projecting beyond the edge of the roof, should be placed below the line of the slope of the roof, especially in sections where snow is apt to pile up on the roof, and slide off when melting. The gutter should be so pitched as to insure free and rapid run-off of water



MEMORANDUM

Up to this point in our report we have been concerned with the structural uses of California Pines, and have put accent upon the qualities of these woods, in rough or dressed form, that make for service and economy in their use for these purposes.

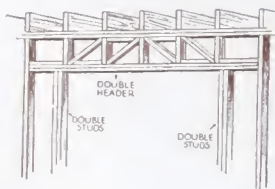
Hundreds of millions of feet of California Pines are annually used in the various forms of exterior and interior finish, doors, frames and sash, etc., where unusual qualities for remanufacturing, finishing and permanence in beautiful appearance are the determining characteristics.

PINE HOMES

WINDOW AND DOOR FRAMES

Very Important Working Parts

We have now come to a consideration of California Pines for those parts of our proposed houses, which will be seen and used, day in and out, for many years.



Having completed the foundations, framework, roofing and sheathing of our houses, we are ready for the installation of the window and door frames, which are a dominant factor in the outside appearance of all houses. These might be called "working parts" of the building, for they must be so constructed as to permit free and unhampered movement of sash and doors, and yet enclose these fixtures so snugly, when shut, as to completely exclude air, water and dust. In fact, win-

dows and doors may be looked upon simply as temporary openings in the wall, which when closed should provide the same protection as a solid wall might give.

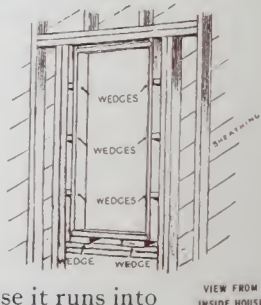
The Essentials of Good Frame Service

Pine Qualities for Window Frames.

Accurate, clean cutting, without splitting.
Ample strength.
Ability to take and hold paint.
Easy to nail, and holds nails tightly.
Freedom from warping and swelling.

It is apparent that strength is an important factor in window and door frame construction, but equally so are the qualities of softness, to permit ease of cutting without splitting; nail-holding ability, freedom from excessive expansion and contraction; and the ability to readily take protective paint, and retain a smooth attractive painted surface.

Probably no woods, other than soft, light-colored pines of the California district possess all these requirements, which are essential to good frame service. The fact that a number of the largest makers of high class window and door frames use California Pines exclusively can be cited as proof of their values for this purpose. An exact figure as to the number of frames annually made of these woods is difficult to obtain, because it runs into the millions, also because there are several ways in which frames are produced, dependent upon the desires of the builder and the available class of carpenter labor.



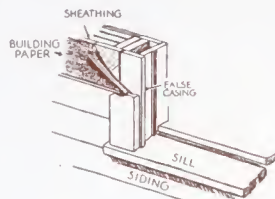
Expert Workmanship Necessary

Expert carpentry is required to obtain air-tight, waterproof frames. In case there is any question as to the quality of workmanship we can get, it will be safer to purchase our frames from the factories, nearby, which specialize in this work, for window and door sills are especially exposed to the elements, and improper frame manufacture may result in premature decay, because of accumulations of water or refuse in poorly made seams and joints.

Twenty

Installation of Frames

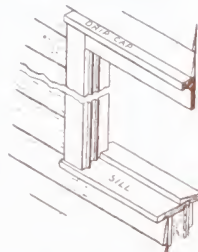
Having provided for well made frames, there are a few suggestions as to installation that will further insure satisfactory service. The frame should be wedged or braced to the structural framing about it, and given added protection by placing a false casing on the outside, flush with the sheathing. A glance at the illustration herewith will show the wisdom of this procedure. It will also be seen that by covering this false casing with building paper and then setting the outside casing over the paper, an air-tight, dust-proof protection is obtained, which will also materially aid in the exclusion of moisture from storms. In any event, building paper should extend to the edge of the pulley stile of the frame, before setting the outside casing. These are simple and inexpensive operations that will do much to protect good materials and workmanship, and will save annoyances and repairs in later years.



Drip Cap and Sill

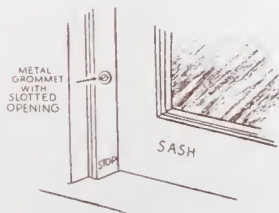
At the top of frames should be placed a molded drip cap with a narrow crown molding. A metal flashing should be nailed to the sheathing and extend out nearly to the edge of the drip cap.

The sketch shows both the drip cap at the top and the sill at the base of a frame. Sills should have sufficient pitch to prevent accumulation of moisture or debris. For instance, an 8 inch sill should have a pitch of at least $1\frac{1}{4}$ inches. On the under side of sills should be a "rabbett" or groove, into which the top edge of siding may be inserted on the outside, and to act as an anchor for the inside plaster.



Good Painting Essential

The life of material, especially in frames, will be greatly lengthened by good painting and if a little white lead be placed at the junction of the sill and pulley stile, this precaution will add to good frame service.



Window Stops

Added protection against draughts, dust and water leakage will be assured by the use of adjustable window stops on window frames. By fastening the inside stop with screws inserted through a metal grommet with a slotted opening, adjustment may be easily made by simply loosening the screw and resetting it at another point.

CALIFORNIA PINE LUMBER GRADES FOR FRAMES

Select grades, obtainable from retail lumber dealers, are recommended for making window and door frames.

CLASS I HOUSES—California Pines "No. 1 and 2 Clear."

CLASS II HOUSES—California Pines "C Select."

CLASS III HOUSES—California Pines "D Select" or "No. 1 Common."

PINE HOMES

CALIFORNIA PINE SIDING

We have come to a most important element in the appearance and utility of the home,—the selection of materials for the exterior protection and finish.

The New England Colonial home owes much of its charm to well painted wood siding, windows and exterior trim.



Siding, or clapboards, as sometimes called, has proved, through centuries of use, to be the best exterior covering for side-walls. The well defined, straight, horizontal lines, produced by good siding relieve the flatness of exterior expanses, and produce the pleasing architectural effects characteristic of the several types of American homes. It's appealing attractiveness never tires the eye.

The many gabled home, of Colonial type, owes much of its allurements to the use of good bevel siding.



PINE HOMES

Homes with wood siding exteriors are part of the familiar and pleasing picture of every residential section, whether city, suburban or country.



The wood siding treatment of this Dutch Colonial home accentuates its allurements.

Protection from the elements and good, lasting appearance are primary requisites in the selection of wood siding.

The wood used should be free as possible from pitch and resinous substances. It should have the minimum tendency to warp or shrink, especially end-wise. It should readily take paint, and hold it smooth, without checking, chipping or peeling.



Wood siding adapts itself to the comfortable attractiveness of this unusual bungalow type.

PINE HOMES

Woods of light, pale colors naturally lend themselves best to white and light-toned exterior paint finishes. Small knots in light woods, if securely fastened, and of neutral colors, may be readily painted over, and will not detract from the appearance. Soft-textured woods, with smooth, satiny surfaces, will take and hold paint best.



Normal bevel siding, with well designed entrance and cornices insure the attractiveness of this bungalow type.

The various types and sizes of homes we have illustrated present a true picture of the beautiful and lasting attractiveness of homes with enduring exterior walls of wood siding. No other exterior covering lends itself to so infinite a range of adaptation to desired forms of construction and finishing effects.

The patterns of California Pine siding now in extensive use are hereafter described and illustrated.



Bevel Siding

This siding is produced by resawing select dressed boards in a diagonal direction, so as to produce siding strips that are thick at one edge, and taper to a thin edge. The view shown herewith illustrates its appearance when applied, before being painted. For most of the better types of houses contemplated, bevel siding will be used. It is made in a number of standard widths, and the width used depends largely upon the size and design of the house.

Twenty-four

Drop, or Novelty Siding

This is produced by running lumber through a planing machine, dressing to a pattern on the face, and with either a tongue and groove, or "shiplap" joint on the edges. This type may be made from either select or common lumber. Drop siding from California Pine common lumber will prove satisfactory for many purposes, providing the knots are given a coat of shellac before the paint is applied. When painted, it is difficult to distinguish from siding of better grade lumber.



Wide drop sidings, generally called "rustic" are often used as the first courses of the building. When the first floor of the building is considerably above the ground, the wall up to this point will look well if covered with this wide rustic siding, above which narrower strips of bevel siding make a fine appearance. Another effective method is to place the wide rustic siding on the wall to the top of the first story of the building, finishing off above with narrow siding.



These various forms of drop, or novelty, siding may give the appearance of bevel siding, may be flat, with a channel along one edge, or have a V-shaped groove on both edges. A very popular type, often referred to as "rustic" is similar to wide Colonial siding, but is rabbetted on the thick edge to make a shiplap joint. Rustics are often shipped with a slightly rough face, produced by fine re-sawing instead of surfacing, for use where a stain finish is desired.



Siding Installation

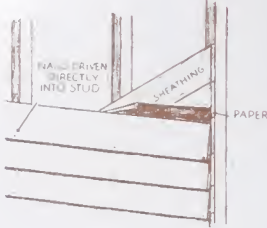
In the first place, all siding should be dry, and kept in a dry place until ready to be applied to the sheathing. And here we should again emphasize that all such precautions will be nullified if the siding is applied to wet sheathing. Very often, before we are ready to nail on the siding, sheathing may have been exposed to rain or snow storms. Let the sun and wind thoroughly dry the sheathing before starting to apply siding. Paper between the sheathing and the siding is a very excellent thing to apply and costs very little.



Siding will have to be carefully cut to make contact with window and door frames, corner boards, mitred corners, etc., and especially spliced joints should be accurately fitted. No trouble will be encountered in this work with California Pine siding, because it cuts easily, either with or across the grain, without splitting or waste of material.



PINE HOMES



While siding is applied direct to the sheathing, care should be taken that nails are driven through directly over each stud and into it. Seven-penny nails are right size for nailing 4 or 6 inch siding, while wider widths should have longer nails and more of them, of the casing or steel type, preferably.

Heads of nails should be sunk into the siding, and a first coat of paint applied as soon as possible. Then putty should be inserted in the nail-head depressions. This will protect the wood from moisture, and keep it dry until the second paint coat is applied.

In order to apply a uniformly thick protection on the entire exterior, bevel siding strips should be lapped a certain distance, as the sketch illustrates. The amount of this lapping depends upon the widths of siding used, and best results will come from following this recommendation:

4 inch siding	lapped $\frac{3}{4}$ inch.
5 inch siding	lapped 1 inch.
6 inch siding	lapped 1 inch.
Wider siding	lapped $1\frac{1}{2}$ inches.

CALIFORNIA PINE SIDING GRADES

All grades of California Pine siding will be found satisfactory, because the woods give uniformly good service, the main difference between grades being that some have small, tight, pale-colored knots, which dress smoothly and are very easily covered with paint, so that they will not be seen.

In many of our houses we will be assured of satisfactory results, with great savings, by the use of well manufactured grades of inexpensive cost.

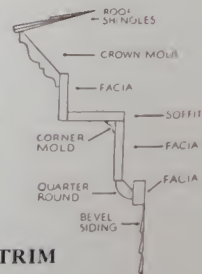
Siding grades recommended for our various house types are:

- CLASS I HOUSES—California Pine Siding "B and Better."
- CLASS II HOUSES—California Pine Siding "C."
- CLASS III HOUSES—California Pine Siding "D" or "E."

EXTERIOR TRIM

There are many small, yet important, items included in the exterior trim of the home, such as casing around openings, cornices, eaves, corner boards, etc., all of which should be of the same wood as the siding; for the good qualities of California Pines have proved their value in exterior trim work.

Exterior trim is made by the carpenter, at the job, using selected grades of California Pines, according to the character of construction. Sometimes the common grades will be found very satisfactory, providing the knots, sound and tight, are first coated with shellac before painting. This will prevent their showing through the paint.



GRADES OF CALIFORNIA PINE LUMBER FOR EXTERIOR TRIM

- CLASS I HOUSES—"No. 1 and 2 Clear."
- CLASS II HOUSES—"C Select."
- CLASS III HOUSES—"D Select" or "No. 1 Common."

THE PORCH

Although we have covered practically every item, under construction and exterior finish, that might be included in porch work, there are one or two suggestions that have direct bearing on this part of the house.



Porch columns, posts and balustrades are usually predominant in the appearance of the porch; therefore, much depends upon the material of which they are made and the manner of installation.

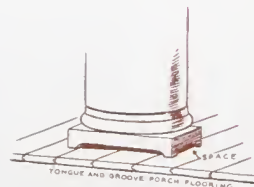
Expert manufacturing is necessary to make a good porch column. The wood used must cut to rounded surfaces, as well as make tight, smooth joints. Particularly important qualities are freedom from excessive swelling and warping and the ability to take and hold paint.



The majestic beauty of these wood columns is in harmony with the well painted wood siding, windows, doors, and entrance of this Colonial mansion.

The use of California Pine columns on a porch such as shown here is convincing evidence of their dependable service. Standard size porch columns of California Pines may be obtained from millwork manufacturers or retail dealers, of design and finish to harmonize with every architectural treatment.

The porch floor and porch ceiling are other parts in which we shall use California Pines, tongue and groove stock being suitable for these purposes, and very dependable in wearing qualities because of the excellent paint holding ability of these woods, and, in the floors, the freedom from splintering under wear.



PINE HOMES

A Few Porch Building Suggestions:

1. The piers, or foundation, should be sufficiently large to avoid sagging of floors, columns and roof.
2. Bases of columns, posts and balusters should be raised from the floor on small wood blocks, to prevent accumulation of water and allow free air circulation to keep dry.
3. The floor should have sufficient pitch to assure that water may rapidly run off it, and it will be found advantageous to apply red or white lead to the tongue and groove boards when laying them.

GRADES OF CALIFORNIA PINE LUMBER FOR PORCHES

Grades corresponding to those used in other exterior parts of the houses will apply to the selection of porch material.

WOOD LATH

Our first consideration in the interior of these houses is the construction of the base for plastering the inside walls. For this purpose wood lath will be used, because it represents the best base and anchor for plaster, proven through centuries of use in every climate, and is also an economically safe investment.

In making these statements we have in mind the necessity of using lath of good quality, light in weight, easy to cut and fit, and of light color, that will not show through the plaster. The California Pine lath meets all these requirements, and in extensive use has proved that it "stays put," preventing plaster cracking.

Installation of Lath

The first requirement for lathing may seem peculiar, for it is so different from all others previously mentioned, namely, that lath be thoroughly wet before the first plaster coat is applied. This is done in order that, in drying, there shall be a co-ordination between the wet plaster and wet lath, so that the plaster will set without cracking.

Each lath will be nailed to each stud with a fine wire nail, and the spacing between parallel lath should not be less than $\frac{3}{8}$ inch. The ends of lath should not be closely fitted, and joints should be broken every seventh or eighth lath. We will see, by the sketch that lath are 48 inches long, thus covering three spans between studs set 16 inches apart.

Joints should not occur directly over the corner of any opening, and lath should not run over, or behind any partition. Studs or well braced backing strips should be arranged so that lath may be firmly nailed at each corner. On corners that project, corner beads should be used.

GRADES OF CALIFORNIA PINE LATH

- CLASS I HOUSES—48 inch No. 1 lath.
 CLASS II HOUSES—48 inch or 32 inch No. 1 lath.
 CLASS III HOUSES—48 or 32 inch No. 2 lath.

Twenty-eight



Pine Qualities
 for
Lath.
 Light weight.
 Easy to nail.
 Nails without splitting.
 Light color.
 Minimum of warping and swelling.



EXTERIOR DOORS AND ENTRANCES

The Importance of a Good Introduction

To the entrance and front doors, our forefathers in New England gave most careful attention. The doorways of Salem, for instance, are world renowned and, as all know, were built of pine. Of recent years many manufacturers of doors and trim have specialized in reproducing the best designs of exterior doors and entrances, using California Pines because of their many fitting qualities, and today these woods may be obtained practically everywhere, worked up into the best designs and forms. The excellent working qualities of these soft pines, together with their ability to cut to fine sharp lines and contours, hold their shape, and take and retain delicate painting and staining effects, have largely influenced the enormous use of these woods for entrances and exterior doors. Examples of such usage are common; a few are reproduced here, as typical.



We are now to enter the home and give consideration to the interior uses of California Pines for sash, doors, trim, mantels, stairways, etc., uses for these woods which consume nearly half the entire production annually.

Twenty-nine



Staircase, panels, mantel, moldings, and doors, combine to make this beautifully enameled interior.

THE INTERIOR OF THE HOME

This is the part of the home with which the occupants will have daily, intimate contact, and the service from which has more effect upon the life therein than most people may think.

Everyone is conscious of the fact that well designed, neatly painted or naturally finished interiors have an influence on the minds of those in the atmosphere of beauty and refinement, but how many of us have reflected upon the extent to which a sticking window sash or a squeaky, or jammed door may have caused mental irritations that destroy harmony in the home.

In our suggestions for construction of the house frame, it will be remembered that accent was put upon the necessity for rigid bases and frames, to prevent annoyances, and these suggestions having been followed, it is pertinent that now we "follow through" with the same care in selecting such items as sash, doors, and other fixtures of continual utility.

By doing so we will insure the occupants of our homes against unnecessary noises and irritating occurrences.

The Use of California Pines for Interior Purposes

Our investigation of this subject brought to light the extraordinary fact that over 400,000,000 board feet of these pines are annually used in making sash, doors, frames and interior woodwork of every description. Inasmuch as a large part of this huge amount is utilized by sash, door and millwork manufacturers, it seemed worthy to learn the reasons therefor, and as these are interesting, and have direct relation to our interest in the subject as builders, we feel that some explanation will be pertinent here.

Thirty

Probably this subject is presented in best form in an advertisement which recently appeared in the trade papers, addressed to what are known as "Lumber Re-workers," these being sash, door and millwork manufacturers. While this is sort of "looking in" on the industry, we believe the facts as stated are most important in providing an understanding of our discussions later on.

OCTOBER 15, 1924

Money-Saving Facts for the Lumber Re-worker

California White and Sugar Pine shop grades are the economical, good woods for Sash, Doors and Frames

Big Trees
Produce
Big Logs

Natural advantages of soil, climate, and altitude combine to make California White Pine some of the largest of the species; make California Sugar Pine (*Pinus lambertiana*) and *Pinus ponderosa*, California Sargent Pine (*Pinus sargentii*) the largest of all pines. Trees are found in the California deserts.

These big pine logs yield a large percentage of upper grade lumber, an average yield being:

California White Pine No. 2 Sharp and heavy, 11.5 - 41.5
California Sugar Pine No. 3 Sharp and heavy, 4.8 - 6.5

Big Log
Produce
Bed
Re-working
Lumber

Thick Wide
"Shop"
Lumber in
Long Lengths
Produces
Largest
Percentage
of Desirable
Clear
Cuttings

[illegible]

Supply and Production

the billion feet of California White Pine and Sugar Pine lumber now stands in the virgin forests of the California Sierras. The annual production of stock used for auto, planes and frames amounts to more than 2.5 million feet. The supply of these woods is ample for two centuries of consumption.

California
Pine
Cut Stock
Produces
Highest
Quality Sash,
Doors and
Millwork
Products

Stick out from those Coldwater White and Sugar Pine oak national forests, the rugged, jagged peaks of the Sierra Nevada range. The product may be made with minimum labor costs, but the price is high. The product is made with minimum labor costs, but the price is high. The product is made with minimum labor costs, but the price is high.

There are no better wash, dress and other mill-work products of soft woods than those manufactured from California White Pine and Sugar Pine.

California
WHITE & SUGAR PINE

Manufacturers Association

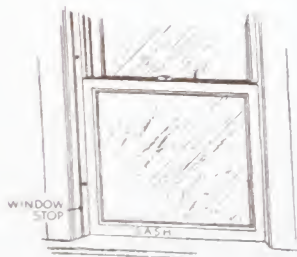
CALL BLDG SAN FRANCISCO
444 JEFFERSON CALIFORNIA WHITE FIR
CALIFORNIA DOUGLAS FIR * CALIFORNIA MONSIEUR CEDAR



The varied types of windows add to the effectiveness of this wood siding exterior.

WINDOW SASH

These are very important "moving parts" of the house, and probably subject to more rough usage than any other. In spite of the hard service to which they are subjected by everyone in the home, they are expected to retain an attractive appearance from the outside as well as the inside. When we consider that permanent satisfaction is gained, and a lifetime of annoyances prevented, simply by careful selection of sash material and workmanship, the additional cost of a few cents per window is inconsequential.



The primary qualifications of sash are that they exclude the elements, when closed, and when open remain in position without rattling.

The necessity of using woods that insulate and have the minimum of contraction and expansion, is apparent when we realize that during the winter the temperature may be below zero outside, and 70 degrees above inside, while the conditions of humidity will vary continually and the wood must adapt itself to all these tests of endurance and service.

Millions of window sash of California Pines are annually installed in the homes of America, a proof of the consistent value of these woods. While acknowledging their superiority, it is well that we consider certain treatments that will further insure our investment.

Thirty-two

W:
hand
they
that
durin

Mil
prima
the v
Calif
quali
work.
with
out s
smoot
unifo
the c
sharp
contra
centu
buildi

Cal
frame
form
unit.

Th
these
tion
lessen
sash b

Insta

We
in the



We
vestm
weath

PINE HOMES

Window sash must withstand the extremes of weather wear, plus handling and friction—a most exacting demand upon the wood of which they are made. Accurate workmanship is paramount; and it is essential that this accuracy be preserved during the life of the sash.

Millwork accuracy depends primarily upon the texture of the wood used. Soft-textured California Pines are *naturally* qualified for precision millwork. They cut easily, either with or across the grain, without splitting. They surface smoothly on four sides. Their uniformly even grain allows the cutting tool to produce sharp edges, which cast the contrasting shadows that accentuate the design of the building.

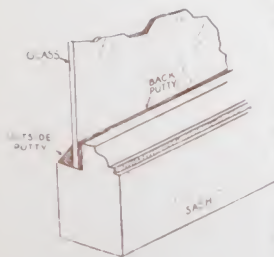
California Pine sash and frames preserve the structural form and design of the window unit.

The very light weight of these pines makes sash operation easy, at the same time lessening the cost of balance weights, or, reducing the strain on mechanical sash balances.



Installation of Window Sash

We will “back putty” all sash, that is, place a small amount of putty in the sash, before the glass is inserted, so as to form a cushion and waterproof seal. This will prevent moisture which condenses on the glass and falls to the bottom, from soaking into the wood.



Many factory-made sash come already dipped in linseed oil. Such sash as we make on the job will be given a good coat of oil or thin paint before installation, as a further protective measure.

On the outside of the sash it will be well to place putty made from pure whiting and linseed oil, and owners should take care to remove this when it becomes soft, or loosens, and re-putty it.

Weatherstripping around the sash will be found an additional good investment, both in protection and home comfort. In cold climates, metal weatherstripping soon pays for itself in the saving in coal alone.

Thirty-three



Front left corner
Round table
Built-in buffet
Glass-paned door
Glass-paned door
Glass-paned door

INTERIOR DOORS

The pine door is the standard of quality among so-called "soft-wood" doors, having earned its right to that distinction through unvaryingly excellent service of many years. Someone has estimated that there are nearly a hundred million pine doors in use today in American homes. Without having access to the exact figures, our investigation has proved that California Pines lend themselves to this class of fixtures in a superior



White door

The Importance of Good Doors

When we stop to consider the fact that opening, closing, locking and unlocking doors are habitual actions of every member of the household from morning till night, every day of their lives, we may realize the importance of installing doors that can be handled with ease and without annoyance.

Of course, doors must look well—that's a primary consideration, but the free and unobstructed movement of doors is certainly the next. Both requirements can only be met by doors of the right materials, and texture of the wood is most important, for it has a bearing on ease of installation, design, finishing, and utility.

PINE HOMES

California Pine doors are available in every design and shape for all interior purposes, being a large part of the production of many of the largest and best door manufacturers through-



out the country. A brief outline of the reasons therefor should at this point be given attention.

Doors Are an Assemblage of Many Parts

In making doors, many parts of different shapes and sizes must be accurately cut and fitted together. Woods of soft, workable texture, with close, uniform grain are best, for they cut easily without splitting, take and hold glue, and, when properly seasoned, will retain their form. This prevents unsightly cracks and openings at the joints. These woods also permit beautiful lines, and sharp, clean edges, which prevent the appearance of flatness.



Thirty-five

Installation of Doors

In the first place, care should be taken that the plaster is *thoroughly dry* before bringing doors into the houses to be hung, and the tops and bottoms should be well painted, to prevent any possible moisture absorption which might cause sticking.



Lightness of weight reduces shipping and handling costs and will prove a factor in saving time in hanging doors. Too much emphasis cannot be put upon the ease of cutting these California Pines, for the carpenter must do fine cutting to fit the locks and hinges and other hardware, and it is a fact that the ease of doing this work has materially lessened the cost of labor. This condition, in

one case that recently came to our attention, represented a saving of 23 cents per door, simply in hanging California Pine doors, as compared with similar work on doors of another material.

California Pine Doors and Good Hardware Make the Ideal Combination

If we can prevent the annoyance and expense of refastening hardware that has become loosened, another homebuilders' bug-a-boo is killed. Nails and screws hold fast in California Pine doors, and do not split the wood. The hinges on each door, securely fastened at time of installation, will hold them fast and true, so that they may be opened, shut, locked and unlocked with ease and quiet.

The combination of California Pine doors and good hardware answers all questions before they are asked.

Smooth Surfaces for Finishing

Doors should have the smooth "feel" before painting that evidences excellent enameling, painting or staining qualities, and be free from "grain-raising" tendencies that destroy the beauty of the finish. Inasmuch as these characteristics of California Pines are thoroughly discussed under the head of Interior Trim, following, we will pass to that subject, after first recommending the door grades for our contemplated classes of houses.

GRADES OF CALIFORNIA PINE DOORS

- CLASS I HOUSES—"Oil finish" or No. 1 doors.
CLASS II HOUSES—No. 1 or "stained" doors.
CLASS III HOUSES—No. 2 doors.

California Pine doors are known for their smooth surfaces and make these famous words for doors.

1. They are undisturbed and straight-grained—work easily and can be cut with or across the grain without splitting.
2. These woods are so seasoned in a climate ideal for their purpose, or are easily kiln dried to uniformity.
3. They take glue evenly over every surface, holding all connected parts rigidly.
4. Their natural freedom from

warping, shrinking and swelling gives the purchaser that California Pine door will keep their shape under varying temperatures.

5. Doors of California Pine may be fitted and hung at minimum cost. A recent comparative test proved a saving of twenty-three cents per door.
6. The fact that these soft-textured woods hold nails and screws firmly without splitting assures permanent installation of all hardware.
7. The smooth, satiny surface of these woods is an affinity for

paint and enamel, taking any color treatment readily and evenly, and holding it uniformly.

8. Because these woods are light in color they do not "oppose" paint, but enable the decorator to obtain the finest finish with fewer coats.
9. Because of their freedom from pitch and resinous substances, these woods eliminate dangers from discoloration to the painted surfaces.
10. The absence of grain-raising assures a permanent mirror-smooth finish.



A living room, where wood trim, moldings, mantel, bookcases and doors combine in satisfying attractiveness.

INTERIOR TRIM

The interior woodwork, which consists of panels, moldings, mantels, and wood trim in connection with these items, assumes great importance because of being a part of the permanent and built-in structure of the home. An error of judgment or carelessness in installation is bound to incur enormous expense for correction.

Before the wood for interior trim is brought into the house, we must be sure the wall plaster has dried thoroughly, and that windows are closed, for the wood is dried, ready for use, and having no paint protection at this time, it should be protected from moisture absorption while being installed.

To the uninitiated, any wood that presents a nice smooth surface, before being painted or stained, might seem to be acceptable. But the real thing to know is how the wood may behave after the paint or enamel has been on for a time, and what effect, if any, will result from temperature and humidity changes.

California Pines Paint Perfectly

In our report on the uses of these woods for doors we mentioned a number of qualities, which readily are seen to have a bearing on their use for interior trim material. Because of the importance of good "paintability" this quality may here be further discussed, with the idea of making it clear to everyone why these pines are without a peer.



The fine sharp lines of paneling, doors and staircase make this enameled interior most attractive.

The prevailing wood finishes for interior trim are enamel or paints of white, gray, ivory, or some light color tone. It is therefore necessary that the wood **take and retain** a smooth finish. The enamel cannot remain flat unless the grain of the wood remains flat. If the grain "raises," that is, shows a corrugated or wavy surface, the enamel covering must follow the pressure of the wood beneath, and "raise" with the wood. Obviously the beauty of the enamel finish will be marred. Eventually it cracks, and peels off.

The wood must possess the ability to "stay put." No enamel can overcome excessive contraction and expansion of the body upon which it is placed. Enamel and paint are brittle. They do not bend. When wood swells or shrinks too much, enamel and paint crack. This ability to **stay put** cannot be seen. It is something that becomes known through years of usage.

The wood must be free from pitch and resinous substances which may be forced through the enamel or paint, and thus discolor its beautiful surface. There must be no discoloration from wood oils seeping up or spreading beneath the enamel, undermining it, and causing it to peel.

The Only True Test

The record of past performance is the only safe guide, and where such a record does not exist, care should be taken in experimenting with the unknown. It is true that experimental and laboratory tests have value in determining some facts, but the results of such tests are confusing to the lay mind, and very apt to be misunderstood and misapplied. Furthermore, statistics of this sort are misleading, unless all the conditions of the experiments are plainly stated.

Thirty-eight

For
the gr
interi
to pre
woods
other
nical
those
to the
amine
apply

So fa
usage
have m
poses b
positive
their b
tion an

GRADE
While
in excell
stock siz
should be

PINE HOMES

For instance, results of a test for durability of woods in contact with the ground are of no value in determining the service woods will give for interior homebuilding purposes. In fact some of the qualities that tend to prevent decay in contact with the soil are just what make the same woods of comparatively small value for interior trim, doors, moldings and other interior uses. In this report we feel that the elimination of all technical information on qualities will prevent misunderstandings, and that those who may wish to investigate further will be better satisfied to look to their architects and builders for guidance. These men will be sure to examine technical data with experienced eyes, and see that the conclusions apply to the use of wood for the particular purpose in mind.



In the bedroom, windows, doors, mantel and trim of well enameled woodwork harmonize with furniture and decorations.

So far as California Pines are concerned, we have found their general usage over a long period of time has proved their values, while, as we have mentioned before, the extensive use of these woods for interior purposes by many of the largest and best millwork manufacturers is proof positive of their superiority, for such concerns cannot afford to build up their business structure upon any but dependable woods, whose production and supply is ample now, and for many years to come.

GRADES OF CALIFORNIA PINE LUMBER FOR INTERIOR TRIM

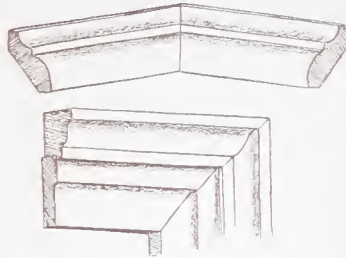
While many of the items of interior trim are furnished by manufacturers specializing in excellently designed and well made wood work, when the trim is to be constructed of stock sizes of California Pine Lumber, from retail dealers' yards, the following grades should be obtained:

- CLASS I HOUSES—"No. 1 and 2 Clear."
- CLASS II HOUSES—"C Select."
- CLASS III HOUSES—"D Select."

Thirty-nine

MOLDINGS

Both inside and outside the house the use of moldings aids ornamentation, breaks up flatness of wall surfaces, serves for picture hanging, plate rails, and a multitude of other uses. In fact these usually narrow strips of wood, of so many and varied lines and contours are really what finishes off the entire style treatment,—sort of tying together all the elements of design. The sketches herewith illustrate typical moldings which lend themselves to varied uses throughout the home.



Early in this report we made mention of the use of moldings as part of exterior trim, where they give service in aiding drainage, sealing exposed joints, and also in adding beauty to the structure.

Standard moldings are a large part of the lumber and millwork output of California Pines, and will be found to fit the purposes throughout the house, except where the architect may have designed something special. In this case the local millwork plant will manufacture the moldings from pine lumber stock.

The varied character and shapes of moldings prove the necessity of the use of fine, soft, easy cutting woods, which will "stay-put" wherever nailed



Pine Qualities for Moldings.

Soft, uniform texture, cut to sharp lines and contours without splitting.
Easy to nail.
Nails hold tight.
Freedom from warping and swelling.
Take and hold paint.
Freedom from "grain-raising."

fast. The clean, sharp lines and beautiful contours of California Pine molding will cast the light and dark shadows which tone up the appearance of the house, outside and inside.

GRADES OF CALIFORNIA PINE MOLDINGS

There is but one regular grade of California Pine moldings, corresponding to the grade of "C Select." This material is generally clear and free from defects. Knots are seldom found, especially in narrow moldings. A second grade, representing material not quite up to the regular standard but satisfactory for many purposes, is made at some mills. This grade usually contains blue stained material, not interfering in any way with use when painted.

Forty

In keep
seem desir
such item
available

No bette
is really a
veniences
ialize in th
kind of ma

Where
will use th
of the hom

For pur
incorporat
and built-
of their us

Ma
V
S
C
M
T



An ideal kitchen, with enamel-wood cabinets and other utilities make work pleasant.

CABINET WORK

In keeping with present day homebuilding we will, wherever it may seem desirable, incorporate into the design and construction of interiors such items as sideboards, book cases, wardrobes, etc., thus utilizing all available space, while adding to the convenience of the occupants.

No better wood than California Pines can be found for this work, which is really a part of the interior finish of homes, and as many of these conveniences can be bought in California Pine from manufacturers who specialize in them, little trouble will be experienced in obtaining the right kind of material and fixtures, wherever the homes may be built.

Where we have our own builders make and install these fixtures, we will use the same grades of pine as are selected for the other interior finish of the home.

For purposes of suggestion and discussion, we have thought well to incorporate herein a list of the possible uses of California Pines for cabinet and built-in conveniences, and also to illustrate characteristic examples of their use.

Main Hall

Vestibule
Staircase
Clothes closet
Mirror door to closet
Telephone cabinet

Living Room

Bookcases
Window seats
Mantel
Fireside seats
Grill over radiator

PINE HOMES



A kitchen of immaculate worth, because of well painted woodwork utilities.

Dining Room

- Sideboard
- China closet
- Wainscoting
- Beamed ceiling
- French doors to living room or hall
- Swing door to kitchen

Kitchen

- Cupboard
- Spice cabinet
- Sink cupboard
- Flour and vegetable bins
- Bread board
- Cooler
- Ironing board
- Broom closet
- Tank closet
- Delivery opening
- Breakfast nook

Breakfast Room

- Built-in-tables
- Seats
- Dish cupboard

Bedrooms

- Built-in dressing table
- Wall clothes closet
- Wall clothes chest
- Regular clothes closet
- Chest of drawers in closet
- Window seat
- Raised platform for bed and vanity

Second Floor Hall

- Linen closet
- Closet for cleaning equipment
- Clothes chute

Den

- Bookcases
- Built-in desk
- Mantel
- Wainscoting

Bathroom

- Medicine cabinet
- Towel closet

Basement

- Cold cellar
- Vegetable bins
- Fruit closet
- Coal bin
- Ash bin
- Shelves
- Bin for soiled clothes

Garage

- Work bench
- Tool closet
- Shelves

For the Whole House

- Window and door screens
- Storm Sash
- Storm doors



A garage, where wood siding, good doors and fine hardware combine in usefulness and beauty.

GARAGES

The garage is a very important adjunct to every well-appointed home. The construction and lines should conform in architectural design with the house, and the same pattern of outside covering,—whether it be bevel siding or novelty siding,—should be used.

The construction of a garage is very similar to that of a house, and it will not be necessary for us to go into the question of the studding, sheathing, siding and roof, except to say that our plan contemplates that the materials for garage construction shall be the same as in the house. It will probably be found that in most cases satisfactory results will come from the use of California Pine lumber of lower grades than correspondingly used in the homes. There is one important difference in garage construction. If not plastered, it should be ceiled with 1x4 or 1x6 California White or Sugar Pine ceiling, run either to a beaded or a V design. Common grades of lumber in most cases serve very well for this purpose, as they will be well painted.

Garage Doors

In the matter of garage doors, however, we feel that special emphasis should be laid upon the necessity for most substantial construction to withstand the rough treatment to which they are usually subjected.

Because of their large size, every effort to reduce weight will add to good service, and the light weight of these California Pines, together with their excellent ability to hold nails and screws, seems to us to make these woods of particular advantage for garage doors.

These facts are recognized by manufacturers who make a specialty of garage door construction. The excellent paint taking and holding qualities of these pines have also influenced their use for this purpose.

Pine Qualities for Garage Doors.

Light weight.
Cuts without splitting.
Readily takes nails and screws and holds them fast.
Hold their shape when exposed to weather.
Easy to paint and retain paint protection.
Ample strength and rigidity.

PINE HOMES

Another factor to be considered is the unusual strains which the swinging of such large doors cause to the framework. Care will have to be taken that the supports for garage doors are of sufficient size, and properly braced, and also that hinges and other hardware be securely fastened. All these requirements are suitably met by California Pines, the use of which in both framework and doors will insure permanently good service.

GARDEN USES FOR CALIFORNIA PINES

Many of the homes we will build in Suburban Hills will have a number of garden conveniences, such as pergolas, benches, steps, curbs, well cribs, lattice, fences and gates, and these, to be in keeping with the homes, should if possible be of the same materials. However, because of the exacting character of their service, special precautions will have to be taken for protection against decay, by the plentiful use of good paint.

Re-painting is very often difficult, if not impossible, in garden accessories, especially if they become covered with growing vines and shrubbery, so that the paint-retaining properties of these soft pines will be found to add value to their use.

Garden uses do not require lumber of great length or widths, and by the use of 4 to 8 foot lengths much construction can be carried on at a very little cost, for short lengths are considerably cheaper than longer ones, and are even more adaptable to these uses. Lattice and suitable moldings for garden designs are readily available in these woods.



The well painted wood gateway adds much to the inviting welcome of the home.

signs are readily available in these woods.

Installation of Garden Accessories

Just a few suggestions here, will be appreciated, and prevent replacement and repair expense in later years.

Cement foundations are easily and cheaply made, and into the cement or concrete a drift bolt should be set, to which the wood may readily be fastened, allowing always for drainage, so that water will not accumulate around the bases.

Several coats of pure lead and linseed oil should first be applied, when white finish is desired. Tints may be added, when other colors harmonize better with the surroundings.

Forty-four



Good wood, well painted, makes the garden a spot of beauty.

Association Organization

The pine lumber industry and the K... construct form our m... tion is not a sal... have associated... promote efficien... form grading, an... information pertain... their product.

Services

A trade exten... aimed to assist an... facturers, dealers... matters relating to... woods. Architects... requested to write... live to their uses... worked products.

Mills in this Ass... inspectors except gra... The Association... corps of inspectors... and checking the w... then insuring to p...

GRADES OF CALIFORNIA PINES FOR GARDEN USES

Select grades are not necessary, though many prefer them, because the use of short lengths permits much construction at low cost. Ordinarily the better "common" grades, such as "No. 1," or "No. 2" common, will be found perfectly satisfactory, for the knots are small and tight fitting.

MEMORANDUM

Before closing this report, we feel that reference should be made to the organization which produces California Pines known as the CALIFORNIA WHITE & SUGAR PINE MANUFACTURERS ASSOCIATION.

This group of pine lumber manufacturers have furnished us with a brief statement concerning the industry as a whole, which contains certain facts, well worthy of our understanding and appreciation.

At the end of the statement is a more detailed explanation of the character of California Pine lumber grades than we have incorporated in the report.

It is particularly satisfying to note that the mills of this Association have already brought their manufacturing practices into line with the recommendations of the national government as to standards of lumber sizes, a move which meets the hearty approval of architects, builders and owners.

Should we, or other builders, desire any further information and statistics regarding California Pines, the Association will be pleased to furnish the same upon request to its office at the Call Building, San Francisco.

Very truly yours,

Frederick A. Williams
Architect

Association Membership and Organization

The pine lumber manufacturer of California and the Klamath Falls, Oregon, district form our membership. This Association is not a sales organization. The mills have associated themselves together to promote efficiency in manufacturing, uniform grading, and the dissemination of information pertaining to the proper uses of their product.

Services

A trade extension department is maintained to assist architects, builders, manufacturers, dealers, and consumers in all matters relating to the proper use of these woods. Architects and builders are requested to write us for information relative to their uses for lumber or its re-worked products.

Mills in this Association employ no inspectors except graders of certified ability. The Association maintains an efficient corps of inspectors continually supervising and checking the work of the mill graders, thus insuring to purchasers of California

pine products, lumber of uniform manufacture and quality.

Forest Resources

The forests in which these mills operate contain approximately 250 billion feet of timber, as follows:

California white pine	105 billion
California sugar pine	32 billion
California white fir	35 billion
California Douglas fir	50 billion
California incense cedar	9 billion
Other species	24 billion

The annual production of this region is approximately 1,675,000,000 board feet, divided about as follows:

California white pine	1 billion
California sugar pine	300 million
California white fir	225 million
California Douglas fir	90 million
California incense cedar	30 million
Other species	30 million

At the present rate of cutting, the available supply should last for nearly two centuries. However, new growth is now adding a quarter-billion feet annually to the supply, thus insuring a continuous production of lumber.

SIZES AND GRADES OF CALIFORNIA PINE LUMBER

California White and Sugar Pine lumber is graded at the mills under the standard rules of the *California White & Sugar Pine Manufacturers Association*, which are in close conformity to American Lumber Standards.

SIZES

Note: We will list the nominal sizes, which are in the rough, and also will include a table which sets forth quite clearly the finished measurements after being worked in the planing mill. This table is applicable to all grades.

FINISHING LUMBER

is available in 1 inch, 1 1/4 inch, 1 1/2 inch, 2 inch, 2 1/2 inch, 3 inch, and 4 inch thicknesses, and in widths from 2 inch up. Widths of 20 inches and more can be had if desired.

THICKNESS			WIDTH		
NOMINAL	DRESSED		NOMINAL	DRESSED	
	(S1S or S2S)			(S4S)	
	Standard	Extra			
		Standard			
* 11/16	11/16	.....	3	2	5/8
1	25/32	13/16	4	3	5/8
1 1/4	1 1/16	1 5/32	5	4	5/8
1 1/2	1 5/16	1 13/32	6	5	5/8
2	1 5/8	1 13/16	7	6	5/8
2 1/2	2 1/8	2 3/8	8	7	1/2
3	2 5/8	2 3/4	9	8	1/2
4	.....	3 3/4	10	9	1/2
			12	11	1/2
			14	13	1/2
			16	15	1/2
			18	17	1/2
			20	19	1/2

COMMON BOARDS

are usually 1 inch, 1 1/4 inch, or 1 1/2 inch thick and from 4 to 12 inches wide, but may be had in any thickness or width. They may be rough; surfaced one, two or four sides; dressed and matched; or worked "shiplap." Grooved roofing, etc.

Boards

THICKNESS			WIDTH		
NOMINAL	FINISHED				
	Standard	Extra			
		Standard			
* 11/16	11/16	.....	3	2	5/8
1	25/32	13/16	4	3	5/8
1 1/4	1 1/16	1 1/8	6	5	5/8
1 1/2	1 5/16	1 3/8	8	7	1/2
2	1 5/8	1 3/4	10	9	1/2
			12	11	1/2

Dressed and Matched (D. & M.)

THICKNESS			WIDTH		
NOMINAL	FINISHED		Nominal	Face Width	Overall Width
	Standard	Extra			
		Standard			
* 11/16	11/16	.....	3	2 1/4	2 1/2
1	25/32	13/16	4	3 1/4	3 1/2
1 1/4	1 1/16	1 1/8	6	5 1/4	5 1/2
1 1/2	1 5/16	1 3/8	8	7 1/4	7 1/2
2	1 5/8	1 3/4	10	9 1/4	9 1/2
			12	11 1/4	11 1/2

Note:—In 2-inch thickness the tongue shall be 3/8 inch and the face width 1/8 inch less than indicated.

Shiplap

THICKNESS			WIDTH		
NOMINAL	FINISHED		Nominal	Face Width	Overall Width
	Standard	Extra			
		Standard			
* 11/16	11/16	.....	4	3 1/8	3 1/2
1	25/32	13/16	6	5 1/8	5 1/2
2	1 5/8	1 3/4	8	7 1/8	7 1/2
			10	9 1/8	9 1/2
			12	11 1/8	10 1/2

Note:—In 2-inch thickness the lap shall be 1/2 inch and the face width 1/8 inch less than shown.

*This thickness is a California Pine Association standard for boards, the result of local manufacturing conditions. Such boards are of great utility.

BEVEL SIDING

is available in widths of 4, 5, 6 inches and wider. In the 8, 10 and 12 inch widths it is generally known as "Colonial" or "Bungalow" siding.

DROP OR NOVELTY SIDINGS

are available in widths of 4, 6, 8, 10 and 12 inches, and in thicknesses of 11/16 and 1 inch. There are a number of different patterns, which are known as Bungalow, Rustic, Channel Rustic, Lapped, Rough-face, etc.

FLOOR-ING, CEILING, DROP-SIDING, AND PARTITION

THICKNESS		WIDTH		
NOMINAL	FINISHED	Face	Face	Overall
	Standard	Extra Standard	Nominal (D & M)	(Shiplap) Width
9/16	9/16	.....	3	2 3/8
11/16	11/16	.....	4	3 1/4
1	25/32	13/16	5	4 1/4
1 1/4	1 1/16	.....	6	5 1/4
			8	7 1/4

The above are run to all standard patterns in the grade you desire.

DIMENSION LUMBER

or framing, is sold in the nominal thickness of 2 inch and in even inch widths from 4 inch up.

THICKNESS		WIDTH	
NOMINAL	DRESSED	NOMINAL	DRESSED
	(S1S or S2S)		S1S1E or S4S
		3	2 5/8
		4	3 5/8
2	1 5/8	6	5 5/8
		8	7 1/2
3	2 5/8	10	9 1/2
		12	11 1/2
4	3 5/8	Over 12	1/2 off

Note: California Pine Dimension is generally finished 1 3/16" thick, this being an Association standard because of local manufacturing conditions, providing dimension of great utility.

FACTORY LUMBER

is available in thicknesses from 4/4 to 16/4, and in widths from 5 inches up.

Millwork products, such as doors, sash, frames, cabinets, moldings, etc., are manufactured from California Pines in standard sizes by factories throughout the United States.

FACTORY LUMBER THICKNESS	
NOMINAL SIZE	FINISHED SIZE
Quarter-Inches	Inches
4/4	13/16
5/4	1 5/32
6/4	1 13/32
8/4	1 25/32
9/4	2 1/8
10/4	2 3/8
12/4	2 3/4
16/4	3 3/4

YARD GRADES**FINISHING LUMBER**

Three grades of finishing lumber are produced:

No. 1 and 2 Clear:

A nearly perfect grade, suitable as a whole for trim, casing, base, and finish. This lumber is of a quality fitting it for natural finishing if desired.

C Select:

Grade only slightly less perfect than B Select and Better. It is suitable for the finest painted trim in high class homes.

D Select:

A grade well suited for any kind of work that is to be painted.

BEVEL SIDING

B and Better:

The highest quality siding, from which side walls practically free from lumber imperfections may be constructed.

C Siding:

A high quality, suitable for good homes. The minor blemishes allowed in this grade are the type easily covered with paint.

D Siding:

This grade of siding admits various imperfections, but will be found an economical and satisfactory grade for many buildings.

E Siding:

Being the lowest type of siding, numerous defects of a more or less serious nature are found, yet, with a slight waste, good, water-tight walls may be made from it.

DROP AND RUSTIC SIDING

Drop sidings in many novelty and rustic patterns are produced in all the grades of finishing and common lumber.

COMMON BOARDS

Common boards for concrete forms, sheathing, sub-flooring, sub-roofing, and other uses, are available in five grades and in several different forms of dressing. They may be surfaced one, two, or four sides to 11/16, 25/32, or 13/16 inches. They may be rabbetted on the edges to make shiplap. Again, they may be finished with a tongue and groove on the edges, otherwise known as "dressed and matched." The grades of common boards are as follows:

No. 1 Common:

A high quality grade, containing small, sound, tight knots, often described as "water-tight," and used in many cases for exterior trim.

No. 2 Common:

A grade containing larger knots than No. 1 Common, but still suitable for many high class uses, such as sheathing and barn boards.

No. 3 Common:

A high grade sheathing lumber; also used for concrete form material.

No. 4 and No. 5 Common:

Lower common grades that have many uses for construction.

DIMENSION OR FRAMING LUMBER

Dimension or framing is sold in three grades:

No. 1 Dimension:

A high class framing lumber of exceptional strength and uniformity of manufacture.

No. 2 Dimension:

A framing lumber of lower grade than No. 1 Dimension, but still suitable for use in good construction.

The above are often sold together as "No. 2 and Better Dimension."

No. 3 Dimension:

This lumber is suitable chiefly for boxing and crating, and is not recommended for general construction.

LATH

Lath are manufactured in lengths of 32 inch and 48 inch, and in grades of No. 1 and No. 2.

No. 1 Lath are sound and uniformly manufactured, containing few defects, and are suitable for use in the finer homes.

No. 2 Lath. While a lower quality than No. 1, will be found highly satisfactory in homes built for economy.

STAINED GRADES

At times during the seasoning process, small patches of stain may unavoidably develop in lumber. This discoloration is usually caused by a mold and is not an indication of decay. Numerous tests have shown that stained lumber is entirely satisfactory for painted or enameled woodwork. Lumber containing stains is always less expensive than bright stock, whether it is purchased in the grades admitting it or in special "stained" grades. Money may be saved by using it in all painted work without lowering the quality of the finished product. Its use is recommended in many homes.

Forty-eight



600 CALL BUILDING
SAN FRANCISCO